Unit 11

Day 5

Applications of Equations of a Line

$$d = \sqrt{(x_1-x_2)^2+(y_1-y_2)^2} \quad (3, y), (-2, 9)$$

81

$$12 = \sqrt{(3+2)^2+(y-9)^2}$$

$$12 = \sqrt{25+(y-9)^2}$$

$$144 = 25 + (y-9)^2$$

$$119 = (y-9)^2$$

$$\pm\sqrt{119} = y-9$$

$$y = 9 \pm \sqrt{119}$$

$$\cancel{\sqrt{25(y-9)^2}}$$

$$\cancel{5(y-9)}$$

b) $(n^2, 0)$ + $(2n-1, (n-1)^2)$

$$d = \sqrt{(n^2-2n+1)^2 + (0-(n-1)^2)^2}$$

$$(-2x)^2$$

$$4x^2$$

$$d = \sqrt{((n-1)^2)^2 + ((n-1)^2)^2}$$

$$a^2 + a^2$$

$$2a^2$$

$$d = (n^2-2n+1)\sqrt{2}$$

$$d = \sqrt{2((n-1)^2)^2}$$

$$d = (n-1)^2 \cdot \sqrt{2}$$

1) A piece of antique jewelry is purchased for $500 and increases in value at a constant rate of 15% per year. Write an equation for value J after t years.

2) Suppose that a worker's yearly salary is $30,000 and that salary increase will be at a rate of 12% per year. Assume that the inflation rate is 8% per year. Write an equation for the real buying power of the salary after t years.

3) Karl Robbins bought a car for $23,500. For tax purposes, Karl assumes a depreciation of 6% per year on the car.

a. Write an equation for the value, V, of the property after t years.

b. After 2 years, what would the value of the car be?

c. Determine how many years it would take for the car to be worth $16,450?

d. How long will it take to depreciate the car to $0. Round your answer to the nearest whole number of years.

HW 3 Wkshts